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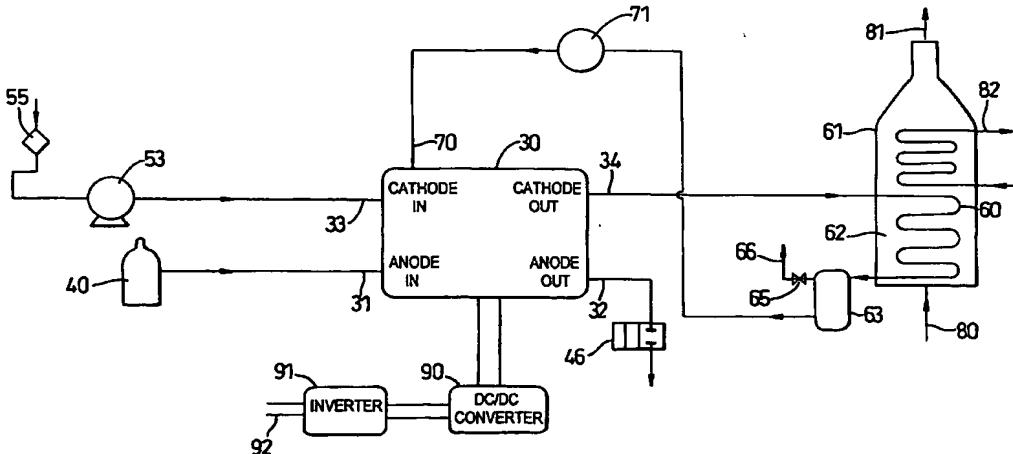
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(54) Title: THERMAL ENERGY MANAGEMENT IN ELECTROCHEMICAL FUEL CELLS



(57) Abstract: A fuel cell assembly supplies water and water vapour by-product to a cooling water circuit delivered to a thermal storage tank from which it can be recycled to the fuel cell stack as direct input to the membrane electrode assemblies, for use as fuel/oxidant preheat and/or direct water injection to the membrane electrode assembly. The purity of water delivered to the membrane is thereby assured. The thermal storage tank allows for a decoupling of the thermal and electrical loads on the fuel cell stack in a combined heat and electrical power delivery unit. Under low external electrical loads, the fuel cell stack and its cooling circuit may be used at high capacity to provide hot water.



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